



PCT/AU03/01183

REC'D 30 SEP 2003

WIPO

PCT

Patent Office
Canberra

I, JONNE YABSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2002951335 for a patent by ANDREW WILLERS and FRIEDHELM JEZUCHOWSKI as filed on 11 September 2002.



WITNESS my hand this
Nineteenth day of September 2003

JONNE YABSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

**PRIORITY
DOCUMENT**

SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

BEST AVAILABLE COPY

AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention Title: Nozzle for sealant cartridges

The invention is described in the following statement:

NOZZLE FOR SEALANT CARTRIDGES

Technical Field

This invention relates to nozzles for sealant cartridges.

5 Background to the Invention

Sealants and fillers are widely used to form a body of material that can fill gaps or cracks or form material between two abutting surfaces. An example of such use is in the glazing a domestic glass window pane in a window frame. A perimeter bead of sealant is first applied to the frame and a further bead is applied after the
10 glass plane has been fitted to the frame. The further bead is applied around the circumference of the pane where the glass pane abuts the frame. The bead of sealant is then worked and shaped with a putty knife or similar tool to form a chamfered or bevelled surface of sealant. The sealant is flowable for application or forming purposes but becomes relatively non flowable by chemical crosslinking
15 reactions or loss of solvent. After curing or drying the sealant may, if desired, be painted. Sealants can also be used as fillers to be used in surface preparation for subsequent painting.

Sealants can have a wide range of compositions including the well known classes of silicones, polysulfides and polyurethanes as well as acrylics.

20 Conventionally the sealants are applied from a storage cartridge which fits into a caulking gun. The cartridges are cylindrical shaped and typically have capacity of approximately 400 ml.

The outlet of the cartridge is typically male threaded. In use, a conventional nozzle is screw attached to the cartridge outlet after the outlet has been opened,
25 usually by cutting the sealed tip off the outlet. The conventional nozzle has a frustoconical shape tapering inwards towards the tip of the nozzle. The nozzle may be cut at a selected point to obtain the desired bead diameter size. The nozzle may be also cut obliquely to assist the application of the bead to the working area.

In practice the working of the bead formed from conventional nozzles
30 requires a reasonable amount of skill and experience to obtain the desired chamfered surface.

It would be desirable to have an improved cartridge nozzle that allowed a chamfered surface to be obtained with inexperienced or DIY operators or more efficiently with experienced tradesmen.

Summary of the Invention

5 This invention provides in one form a nozzle for a sealant cartridge wherein the nozzle has a female threaded inlet end portion for attachment to an outlet of a sealant cartridge, the nozzle includes a shoulder portion adjacent to the inlet portion and a body portion that has a cavity and which tapers from the shoulder portion towards a nozzle outlet, characterised in that the cross-sectional profile of the cavity
10 of the body portion is in the form of a crescent.

Preferably the crescent cross-sectional profile has the same general shape at positions from the nozzle outlet to at least 50% of the length of the nozzle from measured the nozzle outlet to the shoulder portion.

The invention will be further described with reference to preferred
15 embodiments illustrated in the accompanying drawings.

Brief Description of the Drawings

Figure 1 is a perspective view of a cartridge nozzle.

Figure 2 is a cross-sectional profile at positions A and B in Figure 1.

Detailed Description of the Invention

20 Referring to Figure 1, the nozzle 1 includes an inlet end portion 2 which has an annular flange 3 and an internally threaded portion. The nozzle 1 has a shoulder portion 5 with longitudinal rib members 6 that assist in providing grip for attaching and detaching the nozzle 1 from a cartridge. The shoulder portion 5 itself may also taper inwards away from the inlet end portion 2. The nozzle 1 has a body portion 9
25 which tapers generally from the end of the shoulder portion 5 towards a nozzle outlet 4. The cross-section profile of the body portion 9 at the outlet position (A) and a central position (B) is shown in Figure 2 where the profile at position A from Figure 1 is shown as 7 and the profile at position B is shown as 8.

The profile of the cavity defined by the walls at position A is the same shape
30 (but different size) to the profile at the mid point of the body portion 9 between the nozzle outlet 4 and the start of the shoulder portion 5. In the case of circular arcs,

the shape is defined by the ratio of diameters of the intersecting arcs. Preferably the arc of the smaller diameter arc is a semi circle and the larger diameter arc is approximately 20% greater.

In use, the nozzle of the present invention is attached to a conventional sealant cartridge and the sealant is forced from the cartridge to the nozzle outlet 4 by a conventional caulking gun. The cross-sectional profile of the bead of sealant formed differs from the generally circular profile of sealant from a conventional nozzle. The shape of the sealant bead from the nozzle of the present invention allows less skilled working of the bead to achieve the desired chamfer or bevel. In some cases no further working is required thus saving time. By having the cavity cross-sectional profile constant in shape but not size it is possible to adjust the size of the bead by cutting or trimming the body portion of the nozzle. Normally a cut would not be made to leave less than 50% of the nozzle.

In this specification the term crescent profile shape means the curved shape formed by two intersecting curves as exemplified by the waxing crescent moon. The term is not confined to shapes formed by intersecting circular arcs, as shown in the Figures, but also includes other curved shapes including ellipses, parabolas and irregular curves, including combinations of different shapes. The preferred crescent profile is defined by circular arcs. It will be appreciated that the term crescent also includes shapes that approximate a crescent. For example the ends of a crescent could have a radius and this would be often the case when the nozzle is injection moulded. It will also be appreciated that it is the cross-sectional profile of the cavity that determines the shape of the bead. However, in most cases with uniform wall thickness the outer shape of the body portion of the nozzle will be similar in profile to that of the cavity. However, this is not necessary and the outer shape of the body portion may have a different profile.

The nozzles of the present invention may be conveniently manufactured in polyethylene or other thermoplastic polymers by injection moulding. A cap for the nozzle may be integrally moulded with the nozzle. In use the cap is first detached from the nozzle. The wall thickness of the nozzle is similar to that of a conventional nozzle and can be, for example, 1mm.

Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described. It will be understood that the present invention encompasses all such variations and modifications that fall within the spirit and scope.

5

DATED: 11 September 2002

FREEHILLS CARTER SMITH BEADLE

Patent Attorneys for the Applicant

ANDREW WILLERS

AND

10

FRIEDHELM JEZUCHOWSKI

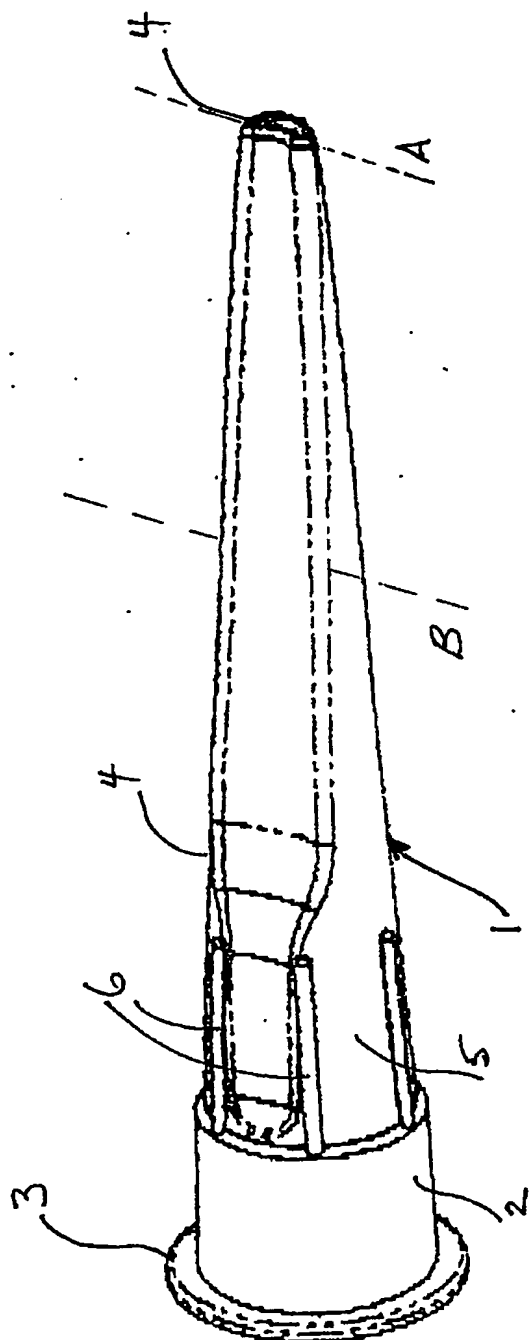


FIGURE 1



FIGURE 2